

Appl. No. 09/447,301  
Amtd. Dated March 9, 2007  
Reply to Office Action of January 9, 2007

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REMARKS

Applicants submit this Amendment Accompanying Request for Continued Examination. Applicants respectfully request further consideration of the amendments and new claims on the merits.

New claims 19 - 24 have been added in order to alternately define the invention as disclosed in the specification.

Applicants respectfully request reconsideration of the Examiner's rejection of claims 1, 3 – 8, 11, 12, 15, 17, and 18 under 35 U.S.C. §102(b). The Examiner has rejected these claims in view of the cited prior art reference of *Elabd et al.* (U.S. Patent No. 5,196,939).

Applicants note that “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Applicants submit that the Elabd reference fails to anticipate each and every limitation of currently amended claims 1, 3 – 8, 11, 12, 15, 17, and 18. First and foremost, and counter to the Examiner's assertion in the last Office Action, Applicants submit that the Elabd reference fails to disclose a read-out gate provided between the sensor array and an accumulation gate for reading-out charges from the sensor array to the accumulation gate as a function of an applied read-out gate control signal. In the last Office Action, the Examiner asserted that the dump drain 35 “is viewed as a readout gate.” Applicants respectfully disagree, and have amended the claims in order to more clearly set forth the difference between a drain connection and a physical gate / charge blocking structure.

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More specifically, as shown in Fig. 6A and as well understood to one of ordinary skill in the art, a read-out gate structure erects a potential barrier between the sensors c and the accumulation gate q' shown in Fig. 6A. The gate can be controlled by an applied signal which causes the charge to be transferred through the gate and into the accumulation gate.

In contrast, as shown in Fig.'s 4 and 6A of Elabd, the Dump Drain 35 is a simple drain connection that is connected adjacent to the vertical transfer registers 15 and which allows for the potential already read-out from the sensor array and into the vertical transfer registers to be drained via a ground connection. Importantly, the dump drain 35 does not erect a potential barrier to the read-out of charge from the image sensor, and does not transfer charge to the accumulation gate as a function of an applied read-out gate signal. The charge already exists across the dump drain area shown in Fig. 6a of Elabd and exists in the Storage Register section due to the direct electrical connection that always exists via the vertical transfer registers 15.

For at least this reason, Applicants submit that the rejection of claims 1, 3 – 8, 11, 12, 15, 17, and 18 must be withdrawn and these claims placed into condition for allowance.

Furthermore, Applicants submit that the Elabd reference fails to disclose the limitation requiring that the at least one horizontal-horizontal transfer register is formed between the plurality of transfer registers for storing and transferring signal charges from one of said plurality of transfer registers to another. As shown in Fig.6A and described in Column 6, line 16 – 51, the charges transferred to the lower transfer register 17B do not first pass through the upper transfer register 17A.

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Furthermore, Applicants submit that the Examiner's cited motivation to combine the Kokudo reference with the Elabd reference fails. The Examiner stated on page 8 of the last Office Action that "it would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the image sensor of Elabd et al to use a horizontal-horizontal transfer ...[in order to] enable the image sensor to perform a progressive scan readout while reading out two rows of image data simultaneously." Applicants respectfully disagree. In contrast to the Examiner's assertion, Elabd already provides for the ability to accomplish progressive read-out of image sensors. However, in order to enable thinning of the image, odd and even pixels of each row are separately transferred to the upper and lower transfer registers, and a dump drain is provided to selectively drain signal charges from the vertical transfer registers. Applicants submit that any attempt to incorporate the transfer register structure of Kokudo would render the Elabd structure incapable of achieving the entire purpose of the invention, which is to provide hardware enabling quick read-out with windowing capabilities. In light of the forgoing, Applicants submit that one of ordinary skill in the art would not have been motivated to combine the references.

For at least this reason also, Applicants submit that the rejection of claims 1, 3 – 8, 11, 12, 15, 17, and 18 must be withdrawn and these claims placed into condition for allowance.

In specific regard to claims 11 and 12, Applicants submit that the vertical transfer electrodes 15A are not gate electrodes as well understood by one of ordinary skill in the art. Rather, the electrodes 15A are vertical CCD transfer electrodes which fail to perform any sort of gating function as claimed. Accordingly, Applicants respectfully request the Examiner withdraw the rejection of claims 11 and 12 and place them into condition for allowance.

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In specific regard to claims 17 and 18, Applicants submit that the read-out drain of *Elabd* performs no transmission function at all. Rather, it merely determines whether to drain the charge already read-out from the sensors and transferred to the storage register via the Vertical CCD's 15. For at least this reason also, Applicants submit that the rejection of claims 17 and 18 must be withdrawn and these claims placed into condition for allowance.

Applicants respectfully request reconsideration of the Examiner's rejection of claims 9, 10, 13, and 14 under 35 U.S.C. §103(a). Examiner has rejected these claims in view of the cited prior art reference of *Elabd et al.* (U.S. Patent No. 5,196,939) and further in view of *Kokudo* (U.S. Patent No. 5,298,734) or *Hirama* (U.S. Patent No. 6,028,299).

Under Section 2143 of the MPEP, in order to establish a *prima facie* case of obviousness, the Examiner must meet three basic criteria. "First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations." *MPEP §2143 rev. 3* (August, 2005). Applicants' assert that the Examiner has failed to establish a *prima facie* case of obviousness for at least the reason that the prior art references, even if combined, fail to teach or suggest all of the claim limitations.

As discussed above, *Elabd* fails to teach or suggest wherein said plurality of transfer registers includes two transfer registers which receive and concurrently transfer signal charges from at least two rows of pixels of said sensor array. Applicants submit that neither one of the *Kokudo* or *Hirama* references make up for this deficiency. Additionally,

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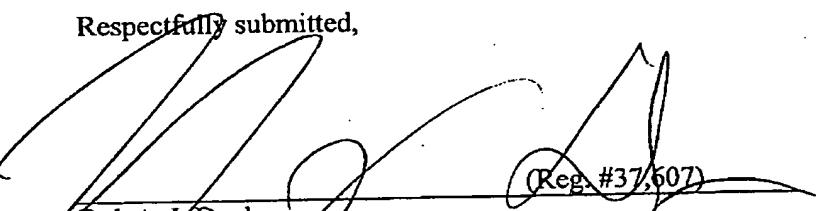
Applicants submit that there is no teaching, suggestion, or motivation to combine the references. As noted above, combining the Kokudo reference in the manner suggested by the Examiner would render the Elabd device incapable of achieving the entire purpose of the invention: the ability to quickly read-out image sensors and selectively window / thin the read out image signals. Furthermore, the Hirama reference utilizes two different horizontal registers having different sensitivities, wherein only one of the horizontal registers is utilized at any one time. Accordingly, Applicants submit that Hirama has no Application or relevance to the problem addressed, and that one of ordinary skill in the art would not have been motivated to combine the references.

In light of the foregoing, Applicants submit that 35 U.S.C. §103 rejections must be withdrawn, and all remaining claims placed in condition for allowance.

The Examiner's remaining references, cited but not relied upon, also fail to anticipate, teach, or suggest the currently claimed invention. In light of the forgoing, Applicants submit that this Application is currently in condition for allowance, and respectfully request notice thereof.

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Respectfully submitted,

  
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